Muon Capture and Acceleration without Phase Roation and Cooling

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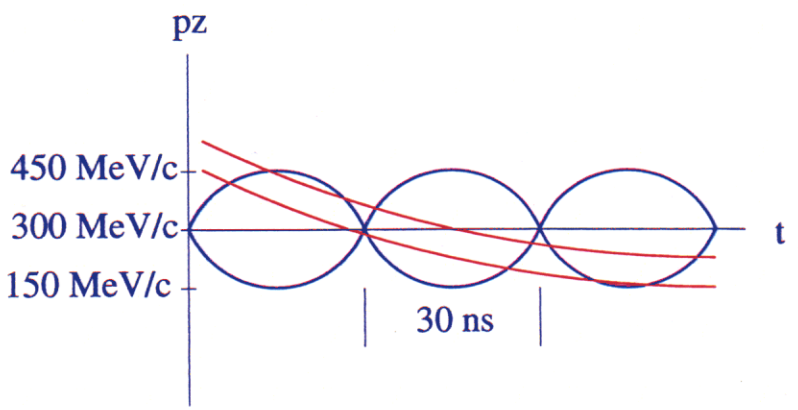
- *NOCOOL* scheme
- machine and cavity lay out
- beam dynamics: ICOOL v2.03 simulations
- conclusion

NOCOOL Scheme: Basic Concept

proposal by K. Bongardt:

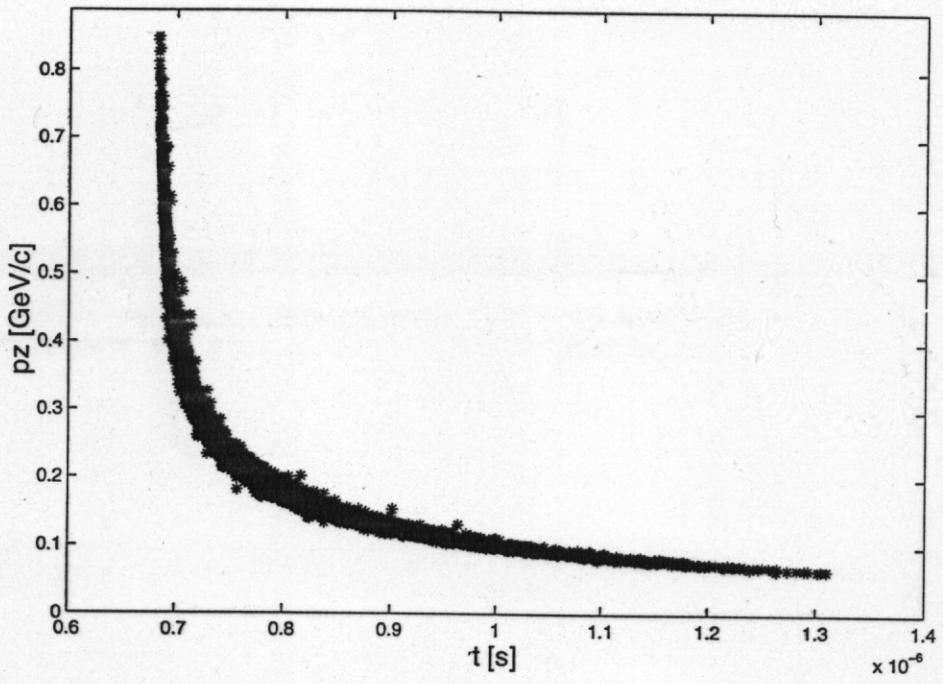
- skip phase rotation and cooling
- 150 - 200 m drift
- capture muons around
  $p_z = 300 \pm 150$ MeV/c in 3 buckets at
  35.2 MHz
- adiabatic change of synchronous phase and acceleration to 1 GeV/c



1 GeV/c $< p_z <$ 2 GeV/c: $f = 105.6$ MHz

$p_z <$ 2 GeV/c: LEPII sc cavities at $f = 352$ MHz

Longitudinal Phase Space after 200 m Drift



Longitudinal Phase Space after 50 Acceleration Structures